PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO

DIANNE FEINSTEIN, MAYOR
DONALD J. BIRRER, GENERAL MANAGER

MUNICIPAL RAILWAY
WATER DEPARTMENT
HETCH HETCHY
WATER AND POWER

ORANDUM

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287 CITY HALL • SAN FRANCISCO, CALIFORNIA 94102 • (415) 554-7316

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ARTHUR V. TOUPIN

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MUNICIPAL RAILWAY

WATER DEPARTMENT

HETCH HETCHY
WATER AND POWER

MEMORANDUM

Friday, 08/21/87

TO: Mayor Dianne Feinstein
Honorable Members, Board of Supervisors
Honorable Members, All City Commissions
All City Department Heads

FROM: Donald J. Birrer
General Manager
Public Utilities Commission

For your information, we enclose the following material which has been developed in response to Secretary of Interior Hodel's proposal to study the removal of Hetch Hetchy dam.

Enclosure

PUBLIC UTILITIES COMMISSION
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WATER DEPARTMENT

HETCH HETCHY
WATER AND POWER

To: Mayor Dianne Feinstein **Aug 21, 1987**

From: Don Birrer,
General Manager
San Francisco Public Utilities Commission

Re: Hetch Hetchy and Secretary of Interior Hodel's Proposal.

On July 29, 1987 Secretary of Interior Donald Hodel drafted a memo to his staff suggesting a plan to study the federal acquisition of San Francisco's Hetch Hetchy water and power project that serves San Francisco, the Bay Area, and other users.
He proposed as part of this effort the option of removing the Hetch Hetchy dam thus terminating the best source of high quality drinking water and an important source of hydro power to San Francisco, the Bay Area and the Modesto and Turlock Irrigation Districts.
This proposal, drafted by Secretary Hodel with out outside consultation or discussion with San Francisco, the affected Bay Area water users, the State of California or California's elected representatives has raised serious concerns about the future of this important regional project.

This memo and the attached materials have been developed to present some key facts and raise specific concerns regarding Secretary Hodel's proposal.

OVERVIEW

* **The Hetch Hetchy project currently provides an economical, dependable supply of the highest quality drinking water to over 2,000,000 water users in 33 communities in the Bay Area, and several mountain communities.** (700,000 in San Francisco and 1,300,000 in other Bay Area communities.)

***The Hetch Hetchy system also generates annually over 2 billion kilowatt hours of hydro electric power.**

This power production is the equivalent of 3.4 million barrels or 170 million gallons of oil a year, or, 465,000 gallons of oil a day. This is enough power to meet the annual energy needs of 220,000 households a year.

Hetch Hetchy's hydro power is clean, dependable, renewable and currently on-line. If this electricity source is lost through the removal of the Hetch Hetchy dam it will have to be replaced and generated some place else. The electricity generated by this project is currently used by all major San Francisco public city facilities: schools, hospitals, the Muni bus system, the SF Airport and the Port. The Hetch Hetchy project also provides electricity to the important agricultural Irrigation Districts of Modesto and Turlock.

***The Hetch Hetchy project was approved by Congressional action 74 years ago after extensive national debate and after a thorough, independent review of 12 major alternative water supplies was conducted under the direction of the Secretary of Interior.**

The Hetch Hetchy project has been operated since that time in a manner that has served important public needs; to provide an economical and reliable high quality water supply. The needs for the Hetch Hetchy project and the reasons for Congressional approval of the project are still valid today and the public dependency on and the use of this project has increased.

*** In 1984 Congress passed the California Wilderness Act. This Act included the designation of the Upper Tuolumne River as part of the national Wild and Scenic Rivers system. In the process of adopting this legislation Congress reviewed and reconfirmed San Francisco's rights under the Raker Act.**

QUALITY OF THE HETCH HETCHY SYSTEM

***Public health is protected by the quality of the waters of the Hetch Hetchy system.**

The Hetch Hetchy project is the highest quality large urban water supply in California. No fertilizers or pesticides are used in the Hetch Hetchy watershed, and, there are no industrial or municipal dischargers or landfills.

***Because of the quality of the raw Hetch Hetchy waters, and the fact that these waters are transported in a system of pipes and tunnels that protects them from contamination, they require only minimal water treatment. The need for minimal water treatment in turn saves money and reduces the probability that water quality problems that might affect public health will be added through water treatment, such as Trihalomethanes, (THM's).**

Both the Federal Environmental Protection Agency and the California State Water Resources Control Board have stated that it is a public water supplier's responsibility to protect public health by obtaining public water supplies from the purest sources possible and to keep water treatment to a necessary minimum. The current Hetch Hetchy system meets both of these important requirements.

Further, last year **California voters overwhelmingly passed Prop. 65** This proposition provides for stricter protection of drinking water. This vote reflects the growing public concern for the quality and protection of their public drinking water supplies, and, their concern for public health tied to the quality of their drinking water. The Hetch Hetchy system provides its 2,000,000 water users with the highest quality drinking water.

***The high quality of the Hetch Hetchy waters is also critical to the important High-Tec industries that are the back bone of the economy of the Silicone valley.**

These industries require a high quality, reliable water supply for their industrial processes and the waters of the Hetch Hetchy meet these needs. If lower quality waters are used the cost of industrial water treatment will increase resulting in higher production costs and some industries may be forced to relocate.

ENVIRONMENT and ECONOMICS

*** The Hetch Hetchy project currently provides many important environmental and economic benefits; quality water,**

hydro power, water flow control and flood control, and public access to the Hetch Hetchy area.

***The costs, both in terms of environmental impacts and dollars, of removing the Hetch Hetchy dam, duplication of these facilities, replacing the loss of water and power benefits and mitigating other project impacts will be extensive and run in the billions of dollars.**

Some of the environmental and economic concerns that the Department of Interior will have to address in any study are;

1) The value and replacement cost of Hetch Hetchy/ O'Shaughnessy dam, the Kirkwood power facilities, the Canyon tunnel, power transmission lines, land, and other facilities (Buildings, roads, etc).
2) The economic and environmental costs of removing the Hetch Hetchy dam, disposing of the materials and reclaiming the valley.
3) The environmental and economic costs of the loss or replacement of the Hetch Hetchy project's water and power benefits, both current and future, to the citizens of the Bay Area, Modesto and Turlock.
4) The cost of replacing San Francisco's water rights.
5) The impacts of the dam removal on the existing public use of the Hetch Hetchy, fish, and commercial recreation activities (Rafting).
6) The potential loss of flood control benefits.
7) The "costs" in terms of the impact on public health of replacing the high quality waters of Hetch Hetchy with waters of a lesser quality.

***The Hetch Hetchy system is the Bay Area's link to an affordable, dependable, high quality, water supply.**

Increasingly, a high quality water supply is seen as a key factor that is necessary for regional economic prosperity. The Hetch Hetchy system currently provides a dependable, high quality, and economical water supply to the Bay Area. The Hetch Hetchy is an established, working water system in a time when there are increasing concerns through out California about adequate water supplies and water quality. These concerns have been high-lighted this year because of regional drought problems and the anticipation of possible water shortages in future years.

***San Francisco's water rights to the Hetch Hetchy project are invaluable. Given the quality, quantity and dependability of the water supplies made available to San Francisco**

under the Raker Act these rights will be difficult if not impossible to replace at any price.

STEWARDSHIP OF THE HETCH HETCHY

***The Hetch Hetchy area currently is open to the public and offers an outstanding recreational experience.**

San Francisco develops and maintains public access sites, trails and roads in the Hetch Hetchy area. The Hetch Hetchy region currently provides a unique recreation experience and public access to the Sierra High Country.
Over the next three years San Francisco will spend $500,000 to build a new camp ground and visitor information center at the Hetch Hetchy Reservoir, $398,000 to assist in the maintenance of the watershed and hiking trails, and $200,000 for fisheries studies.

***The Hetch Hetchy system has been operated under the highest environmental standards.**

The Hetch Hetchy operating staff live and work in the Tuolumne area. They are keenly aware of the fragile nature of the environment surounding the project and of their responsibilities to protect this environment.
Water release policies have been established that benefit recreational rafters and fishing by assuring that adequate water flows to the Tuolumne River are maintained year round. Without the Hetch Hetchy dam normal water flows in the Tuolumne River in summer would be lower than the levels that are currently maintained with the dam. If the dam is removed the rafting season would be reduced by as much as30% and fish water releases will be reduced.

***San Francisco and Bay Area water users have instituted efforts to both conserve and to reclaim their finite Hetch Hetchy water resources.**

San Francisco's current water usage of 107 gallons per day per/capita is among the lowest urban water use in the State.
San Francisco has as a future target to conserve up to 10% of its current water usage and to try to reclaim even more through various water reclamation projects.

SUMMARY:

Secretary Hodel's proposal has raised many questions and concerns but provides few answers. Some of the questions that need to be answered are:

How are water and power services in term of quality, supply and cost going to be maintained to Hetch Hetchy's 2 million customers if this project is taken over by the Federal Government and the Hetch Hetchy dam removed?

How are San Francisco and it's customers going to be compensated for the loss of these resources, facilities, and water rights?

How are future water and power supplies to San Francisco and it's customers going to be assured, and what effect will this have on the water supplies and water rights of other jurisdictions?

What will be the environmental and economic costs of implementing Interior's proposal?

Given the potential environmental and federal costs of Interior's proposal might there be better options available to relieving the pressure on Yosemite valley?

The environmental and economic costs of removing Hetch Hetchy dam, combined with the physical limitations of the valley itself for large scale recreation use (only 800 acres of usable land and extensive flooding of the valley in the spring), raises the question whether federal funds might not be

better spent for public recreational facilities else where in Yosemite National Park or closer to urban population centers such as Los Angelos, Sacramento, San Diego or the Bay Area.

APENDIX:

An Historical Overview

The Hetch Hetchy System

The following two sections present an historical overview of the Hetch Hetchy system and a discription of the physical system itself.

An Historical Overview

The original concern for developing an adequate water supply for San Francisco and the Bay Area goes back to the 1880's. Even though San Francisco's population in the late 1800's was small it was growing. By 1900 it had reached 350,000 and the cities leaders recognized the future implications of continued population growth and the resulting demand for a high quality and dependable water supply. Water was seen by those city leaders as one of the keys to the regions growth, economic development and prosperity.

In 1900 under the leadership of Mayor James Phelan 12 possible sites for future water supply were extensively studied. These sites included:

Lake Tahoe	**Eel River**
Yuba River	**San Joaquin River**
Feather River	**Clear Lake and Cache Creek**
American River	**Stanislaus River**
Sacramento River	**Mokelumne River**
Bay Shore Gravels	**Tuolumne River**

As an historic note all of the above water supplies are now either developed or are off-limits to development. As a result none of the above water sources would be available as a substitute for the loss of Hetch Hetchy.

The Tuolumne River and the Hetch Hetchy were selected from all of the above sites as the best site for a high quality water supply for the following reasons:

*the unique high water quality

* the ability to keep the watershed protected,
*the adequacy of the water supply,
*the area had a good reservoir site,
*it was free from conflicting legal claims,
*and it had hydro-power potential.

On February 15, 1901 by an Act of Congress the Secretary of Interior was authorized to use the rights-of-way through the Yosemite, Sequoia and General Grant National Parks for water conduits, water plants, dams and reservoirs.

In July, 1901 Mayor Phelan, on behalf of San Francisco, applied to the Interior Department for the rights to develop Hetch Hetchy.

In 1906 with the Great San Francisco Earthquake of April 18, the critical needs in San Francisco for an adequate water system and water supply for public safety reasons were brought home in an historic way.

From 1906 to 1910 San Francisco continued to push the Interior Department for approval of their permit request to develop Hetch Hetchy and thus obtain a dependable and high quality water supply.

On May 10, 1910 Secretary of Interior Richard Ballinger asked the Secretary of War to appoint a special board of Army engineers to review San Francisco's Hetch Hetchy proposal.

On Feb 19, 1913 the Army board after reviewing 12 sites issued their report and it supported the cities request that Hetch Hetchy and the dam site be allowed.

While the San Francisco had obtained the approval of the Interior Department the city recognized that if this project was to be protected from any future administrative "changes of mind", and, because of the size of the Cities investment in and dependency on this project, that it needed an Act of Congress to provide long term protections. As a result in April of 1913 Representative John Raker introduced a bill on behalf of San Francisco and the Hetch Hetchy project.

The Raker Act, however, while granting rights-of-way and use of public lands also required the city among several things;

1. To build hydro power facilities to supply public and commercial needs. Even in 1913 there was a concern for the conservation of scarce fuel oil

energy resources by the development of dependable and renewable hydro power.

2. To build and maintain miles of scenic roads and public hiking trails for public use.

After a long and heated Congressional debate that pitted many different factions against one another, including Gifford Pinchot against John Muir, the Raker Act was finally passed on Dec 6, 1913.

President Wilson on signing the Raker Act said, "... it seems to serve the pressing public needs of the region better than they could be served in any other way, and yet did not impair the usefulness or materially detract from the beauty of the public domain"

San Francisco and the Bay Area now had the approvals and the Congressional protections needed to start construction of the Hetch Hetchy project.

The Hetch Hetchy System.

The Hetch Hetchy system was originally designed by John Freeman in 1912 and this original design served as the basic concept for the final Hetch Hetchy project. Freeman's idea was to use a gravity flow system of reservoirs, tunnels, and pipes to collect and transport the Hetch Hetchy project waters the 148 miles from the Sierra mountains to the Bay Area. The beauty of the system was that it was constructed to minimize the need for and the expense of pumping water the 148 miles to the Bay Area customers.

The system still under construction today consists of three major dams (the O'Shaughnessy, a 312 ft. dam that impounds 360,360 acre feet of water; Cherry, a 315 ft. dam that impounds 268,800 acre feet and Eleanor, a 60 ft. dam that impounds 27,000 acre feet.), 150 miles of pipelines, 77 miles of tunnels, three power houses and three smaller diversion dams.

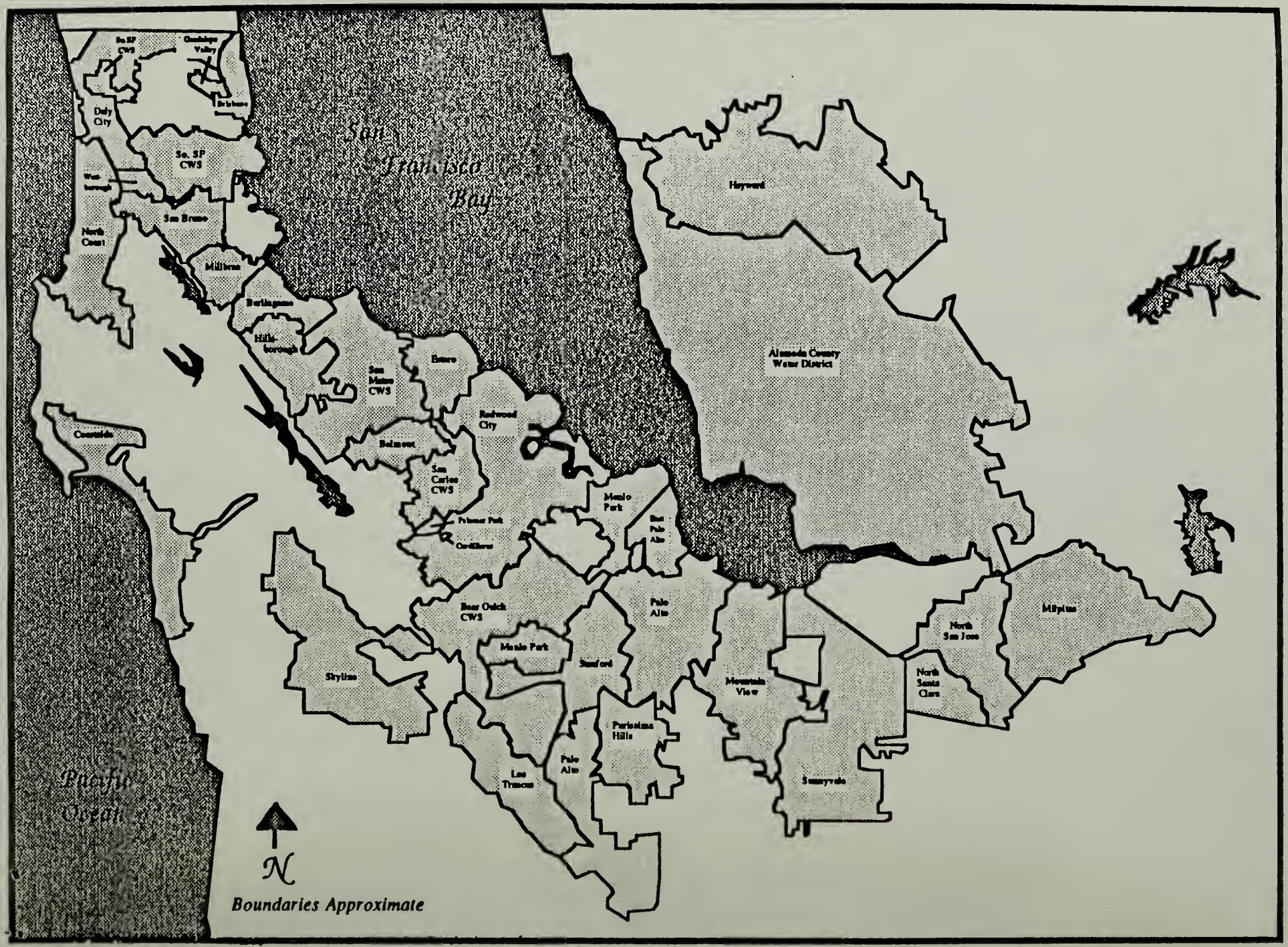
The system draws water from 429 sq. miles of the watershed of the Hetch Hetchy, the 114 sq. miles of the Lake LLoyd watershed, and the 79 sq. miles of the Lake Eleanor watershed.

The attached Map outlines in detail the key elements of the system.(Refer to Map)

The system is designed to deliver up to 300 million gallons a day (mgd) to the Bay Area. In 1986 the system delivered an average of 270 mgd.

In addition to its water supply system the Hetch Hetchy project produces over 2 billion kwh of hydro electric power a year. The system has three power house units located at Moccasin, Holm and Kirkwood and over 160 miles of power transmission lines.

The system as conceived and as built in the 1930's has now operated for over 50 years and has continued to provide a dependable, high quality and economical water and power supply.



SERVICE AREAS OF THE SAN FRANCISCO BAY AREA WATER USERS ASSOCIATION